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## EXPENDITURE ON EDUCATION AND ITS EFFECTS ON FERTILITY.

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More than ten years ago I remember having had a long discussion with Mr. W. C. Marshall, who was a member of our Council before I joined the Society, as to the possibility of increasing the fertility of the artizan class—a very valuable class from the eugenic point of view—by giving further subsidies to technical education and by thus lessening their fears that their children would be unable to follow the same calling as themselves. We were both inclined at first to believe that this was obviously the right policy to pursue on eugenic grounds; but the more we looked into the question the more doubtful we became as to the probable racial effects of any move in this direction. This is the subject I propose now to discuss, though with considerable trepidation; for in attempting to estimate what are likely to be the effects on the birth rate of any expenditure by the state on education, we find that the facts on which we have to base our conclusions are, as a rule, ill-established and that we are here dealing with a puzzling tangle of opposing influence and secondary consequences. What we have to remember above all things is that it is only by either a relative increase in the fertility of the higher types or a relative decrease in the fertility of the lower types that any racial progress can be surely brought about; and what we have to enquire is whether further grants for educational purposes would ease the strain on parents in such a way as to make those belonging to superior stocks produce larger families, without affecting the inferior stocks to the same extent. Educational authorities are not yet aware of the existence of such a problem, or at all events of its practical importance, and no recorded discussion of this topic is known to me.

In breaking this new ground, it will be assumed that free elementary education goes on in the future on the same lines, broadly speaking, as at present. Secondary education being the subject to which attention is here now mainly directed. State expenditure on higher education may be of two typical kinds; namely (1) subsidies to educational establishments of various kinds, the money not being ear-marked for the benefit of particular pupils, and (2) expenditure for the benefit of particular pupils; or, in other words, on scholarships. Again, scholarships may cover only a small part of the expenditure necessarily falling on the parents, these being here described as minor scholarships; or they may cover most or all of such expenditure, including maintenance at home, when they will be described as valuable scholar-

ships. For the same total expenditure, minor scholarships can, of course, be far more numerous than valuable scholarships. Then as to the racial effects of these different kinds of expenditure, this also may be considered under two headings; namely, (1) the effects of state aid to secondary education on the fertility of pupils generally, and (2) the effects of this expenditure on the fertility of those who if they become parents in the future, would send their children to the institutions thus assisted. The effects on the fertility of pupils and on that of potential parents in fact raise very different points for consideration, the effects on potential parents being probably the more important of the two.

In the first place, as to subsidies other than for scholarships to secondary educational establishments and their effects on the fertility of the pupils whose education is thus either cheapened, improved or lengthened, certain investigations have pointed to the conclusion that secondary education produces no direct effect on fecundity, that is on the actual power of producing offspring when desired, the age of parents being taken into consideration.\* As fecundity is the result of a number of *inborn* qualities, this is however, what we should expect to find. It has often been proved, no doubt, that the highly educated classes are the most infertile—that is, they have as a fact smaller families than have those classes which are less well-educated; but this fact standing alone cannot be accepted as a proof that it was a difference in educational facilities which actually had affected their fertility; for this correlation between educational opportunities and the size of the family may have resulted from various extraneous causes. Higher education is, of course, carried on to a later age than is elementary education; but this difference in the age at which education ceases is not sufficient to account for any material difference in fertility between those educated only in elementary schools and those also in colleges. Secondary education certainly does, however, lead to the adoption of occupations in which education in the true sense of the word is carried on for a long time after all nominal education has ceased, in which salaries rise for many years concurrently with increasing knowledge, and in which marriage in consequence often takes place late in life or not at all. Even if we do hold that subsidies to higher educational establishments may allow the school education of the pupils to be lengthened and may thus slightly lessen their fertility, yet I think we must conclude that a greater effect in this direction is likely to result from pupils, especially the more energetic, being led to adopt callings which they would not otherwise have adopted. In other words, certain individuals, generally the most capable of their families, would often take advantage of any greater opportunities open to them in consequence of any increased subsidies to education in such a way as to lead them to adopt one of the professions where families are usually small. But here it must be remembered that if the only effect of the entry of these selected individuals into these higher professions

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\* Brown, Greenwood & Wood. Fertility of Middle Classes. *Eugenics Review*, Vol. 12, p.158. Prof. Holmes, J. of Heredity, Oct. 24. H. J. Banker J. of Heredity. Feb. 25.

were to be the exclusion of other less capable persons from them, this public expenditure would not produce any racial effect by decreasing the total number of offspring produced in that class. It would, however, tend to increase the natural superiority of the highly educated and infertile classes by making more effective that selective process which is now in operation, and thus to increase its dysgenic effect. This, we see, is all that would occur if the proportion of the individuals adopting the more mental as compared with the more manual callings were to remain unaltered after the introduction of any educational reforms; but we cannot assume that this would be the case, for the march of civilization, which is largely due to improved education, has been nearly always accompanied by a relative increase in the numbers of those who gain their living by their brains, this increase being largely the result of labour-saving appliances. If this be so, increased educational facilities would also tend to make more widespread that infertility which now characterises the better paid classes. Thus, when we look to the effects on the individuals whose education would be affected by increased grants for secondary education, we must conclude that such grants would, for the foregoing reasons, be likely to be accompanied by a relative increase in the tendency towards racial deterioration due to the infertility of the more educated classes.

We must now pass on to consider the effects of general educational expenditure by the state on the fertility, not of the pupils themselves, but of potential parents, that is of those who might have offspring in the future. Fertility undoubtedly depends to a large extent on the ease of living up to a certain customary standard of life; and consequently any reform which had the result of making education become less expensive would, it would seem, tend to increase the fertility of potential parents. A point which is, however, here often overlooked is that this same process of making the education of children less costly to their parents would also tend to raise the customary standards of life in regard to education, and thus gradually to mitigate or nullify the primary effect on the fertility of potential parents due to this easement of the strain on their finances. Moreover we cannot be sure what would be the effect in the future of any increased public expenditure on education; for it might affect potential parents in other ways. It is no doubt true that if in consequence of any such reform, education were to become a less heavy item of customary expenditure, the potential parent might become more ready to welcome the appearance of a larger family than he would otherwise have contemplated, or, in other words, he might become more fertile. And, in this case, if his children, when they grew up, were satisfied with the education they had received, they in their turn might wish for nothing better for the education of their prospective children; with the result that the fertility of potential parents might thus be permanently increased. But, on the other hand, if any reform did not lessen the cost of education to parents, or if the standard in educational matters were in consequence to be just so much raised as to make the customary educational expenditure by parents the same as it had been previously, the potential parent might see no reason why he should limit the size

of his family either more or less than did potential parents before the reform in question. Again, the potential parent might consider that any future cheapening or improvement of certain types of higher education, which he would now regard as being out of the question as regards any children he might have, would open out new vocational opportunities for his family if he were to restrict their numbers more than he would otherwise have contemplated. In short, in so far as any increase in the educational expenditure by the state had the effect of increasing the social ambition of potential parents, it would make for infertility. We conclude, therefore, that to lessen the cost of such education as is now held to be satisfactory by potential parents would tend to increase their fertility in the future, whilst an opposite effect would be produced by any lessening of the cost of such education as is now held by them to be out of the question for their family—that is, if it would open out before them any new prospects of social advancement for their children. And the question is, which of these two tendencies is likely to prevail? Certainly the fertility of the educated classes has been falling steadily for many years, whilst there has been a steady concurrent rise in educational expenditure; and from this it seems probable, though by no means certain, that the net result of any further increase in the general expenditure by the state on education would be to tend to cause a further increase in the limitation of families by educated parents.

Thus we see that whether we look to the effect on pupils or on potential parents, it seems probable that any increase in public expenditure on education would tend to diminish the fertility of all the social strata thus affected; and we now have to enquire whether the foregoing conclusions, if they be accepted, afford any indication of the public policy which ought to be advocated in regard to either the diminution of the fertility of the less fit or the increase in the fertility of the more fit. As to those individuals whose want of success in life not only makes it difficult for them to bring up a family in suitable surroundings, but also gives some indication of their average natural inferiority, it would appear that their fertility might be reduced by making the cost of educating their children fall more heavily upon them. This is, however, a proposal not to be tolerated; and all we can say is that as the education of the children of the poorest classes now costs them nothing, there is no possibility of further harm being done by cheapening it. Then as to the possibility, by opening out new educational opportunities for their children, of promoting social ambition amongst the ill-paid classes and thus of diminishing their fertility, probably but few persons in very poor circumstances could be affected in this way; and as these few would be the pick of their class, any diminution in their fertility might be racially disadvantageous. Then, as to attempting to increase the fertility of the more fit, even if it be true that a decrease in educational facilities would have that effect, yet any move in that direction is obviously most undesirable. We must give an excellent education to all those classes which are not only capable of benefiting by it but are also especially likely to contain men whose services to the nation would be of exceptional value if well educated.

And here we must ask whether in truth what we have here been doing has not been merely an attempt to disentangle some of those complex influences which, as the result of increasing civilization, are producing an increasing relative infertility of the superior types, to the ultimate destruction of civilization itself if not checked in time. Civilization is largely due to education, and to strive to promote the fertility of the better types by any attack on education would be to attempt to preserve civilisation by destroying it. Education must be promoted at all hazards, though it may perhaps be possible to indicate some educational policies which would be less harmful than others. Our general conclusion must, however, be that to combat the harmful effects of educational expenditure on fertility, we cannot rely on any educational reform, but must look almost entirely to those methods of affecting the fertility of the more and the less fit which have no reference to education. If this be so, educationalists, of all reformers, ought to be most eager to advocate such safeguards as are necessary to insure that the racial qualities of the nation shall improve in spite of all future educational reforms.

#### SCHOLARSHIPS.

Before coming to final conclusions, another kind of expenditure in connection with education has to be considered, namely, that on scholarships. It may be suggested that the award of scholarships would result in the picking out of the best of each social class; and that by thus giving advantages to a selected few over their early associates, they would be made more likely to marry, with eugenic consequences. This beneficial effect of scholarships is, however, in my opinion, likely to be outweighed by influences acting in the opposite direction. In the first place, by winning a scholarship, the scholar becomes more likely to adopt a calling in which salaries rise both slowly and for a long time, and which is, therefore, inimical to fertility. Again, as to those who move out of their original social surroundings—as must often be the case with scholars originating in elementary schools—it seems to be probable that they will in consequence have fewer opportunities of making friends with persons of the opposite sex, this again being a cause of relative infertility amongst those rising to a higher social class. Scholars certainly form a carefully selected and valuable group of the community, and if it be true that on the whole scholarships tend to diminish the fertility of their recipients, their award must be held to produce dysgenic effects. Scholars of marked and outstanding ability no doubt, as a rule, make a financial success of their lives, even in new social surroundings, and success of this kind certainly does materially help them in their search for a mate, even if their actual educational attainments are of little avail to them in this respect. Again, the more completely scholarships cover all the costs falling on the parents, the wider would be the field of choice, and if only a limited number of scholarships were awarded, the higher would be the average ability of those selected. Hence, to aid a few exceptional persons to mount to the top of the social ladder by the award of valuable scholarships would probably be less harmful to the race

than to aid a larger number of persons to climb but a single step by the award of many minor scholarships.

We have also to consider the effect of the award of scholarships on the fertility of potential parents. If scholarships were to be so numerous that the potential parent could count on any child of his being not unlikely to win one, and if the consequent prolongation of the educational period necessitated an increased expenditure for maintenance, then such a system would tend to decrease the fertility of the social stratum thus affected; for the potential parent would often realize that it would only be by rigidly limiting the size of his family that any of his children would be enabled to take advantage of these opportunities. On the other hand, if the scholarships were few in number, and if they were so valuable that they covered all the costs of both education and maintenance, they would afford no logical reason for making the potential parent desire to limit the size of his family. Here, again, therefore, we come to the conclusion that, as far as racial effects are concerned, a given sum of money had better all be expended on the award of a smaller number of valuable scholarships rather than on a greater number of minor ones.

There is, however, yet another side of this question which has to be taken into account, and that is the effect of the award of scholarships to members of a lower stratum on the fertility of potential parents belonging to the higher strata into which these selected scholars would enter as recruits. The effect on potential parents of any increase in competition from outside their own social stratum must be to make them feel less secure in regard to the prospects of any children they might have in the future, and this feeling of insecurity would tend to make them less fertile. Hence, the award of scholarships tends to produce infertility, not only in the social stratum primarily affected, but also in all the strata above it. And the only complete remedy for the harm done by scholarships—and also by educational facilities generally—in promoting infertility by facilitating the transfer between classes would be by the introduction of a caste system so rigid as to prohibit all movement between the different social strata. But such a proposal stands condemned, not only because of its immediate social effects, but also because its racial effects would in truth in the long run probably be harmful. In fact, we are here again considering one of those injurious effects on the race resulting from the civilizing influences of education, effects which certainly we can only hope to reverse by the introduction of reforms unconnected with education.

Another point perhaps worth noting is that it is not an uncommon practice to consider the financial position of the parents when awarding minor scholarships or bursaries; and, although strong arguments can be brought forward in favour of these awards being affected by the parents' ability to cover the necessary costs, yet something may be said on the other side. The aim of public expenditure on scholarships should be to produce citizens likely to prove of value to the nation as a whole; and in this connection it must be remembered that the future success of the child of to-day will depend largely on the possession of certain qualities which cannot be tested by scholarship examinations.

Now these untested qualities, which are dependent on character, temperament and health, are less likely to be found amongst the families of the unsuccessful than amongst the descendants of the successful; and, consequently, any preference given to the children of poor and often unsuccessful parents would somewhat diminish the chance of those selected turning out to be persons of value to the state. A less subtle argument telling in the same direction can be founded on the fact that anything which attaches the taint of charity to the whole system of scholarships does widespread harm. It would not be difficult in support of this view to point to a school where the scholars are not held in equal esteem with the pupils whose parents pay full fees, and where all the boys are, or were, apt to despise learning. In the long run it would probably be best for the nation if, in connection with the award of scholarships, no enquiry were to be made in regard to the parents' financial position; whilst if racial effects only were to be held in view, the extraneous circumstance which ought to tell most in favour of the pupil in regard to the award of a scholarship should be his being a member of a large family. If scholarships could be utilised as a means of promoting to the higher social strata those individuals who are both able *and naturally fertile*, this item of educational expenditure would become decidedly beneficial to the race.

#### MINOR CONSIDERATIONS AND CONCLUSIONS.

When considering the ways in which the effects of educational expenditure could be made less harmful to the race, it should first be noted that in so far as education does no more than make for advancement in moral tone or aesthetic taste, without promoting social ambition, it can hardly affect the fertility of the individual one way or the other; except that if the laws of natural inheritance were to become widely known, the stronger the sense of duty, the more likely would the individual be to do what is right in regard to family limitation. And this consideration confirms a conclusion which may be drawn on other grounds, namely that the main, though not the exclusive aim of state expenditure on education should be character building.

It is both legitimate and convenient, for reasons which I have given elsewhere, to look to the day labourer as being typical of the class in which the size of families is in need of being held in check, and to the skilled artisan as being typical of the class in which fairly large families are especially to be desired. And our conclusions can be well illustrated by considering what should be done as regards these two classes as far as educational facilities are concerned. Looking to the day labourer class in the first instance, what has been said in regard to scholarships need not here be repeated; and all that remains to be noted is that the average fertility of this class could be somewhat diminished by a prolongation of the period of compulsory education; with its consequent latening of the age at which remunerative work could be begun. This effect would, however, only be produced because the result would be an increase in the strain on the already strained family finances of the poor; and, consequently, the worse the type of potential parent, the less would be the resulting check on his fertility.

Many poor parents, no doubt, would take thought as to any prospective diminution in the earnings of their children when grown up; but here we must ask whether some unmistakable warning indicating the size of the family which ought not to be exceeded, together with some effective method of enforcing attention to such warnings when given, would not in the long run be both kinder to the individual and better for the race than any indirect pressure connected with education. If we could rely on effective racial safeguards being introduced in the future, the school age should certainly be settled without any reference to eugenic considerations.

Then, as to the skilled artizan, his fertility would be increased in a desirable manner if he were made to feel more sure that he would be able without undue strain to bring up several boys to follow the same calling as himself. This end would probably best be attained by making all education during the compulsory period not only free of cost but also of so good a quality as to make it give complete satisfaction to the parents and, therefore, not to give rise to any temptation on their part to incur extra expenditure on education during this period. As to any secondary education held to be desirable by the artizan for his children at a later age, this should be largely aided by the state, but should not be given quite free of cost. The expenditure by the artizan on higher education, in so far as useful in training his sons to become craftsmen like himself, would best be covered by a contributory family allowance system organised to their own liking by the artizans themselves. We have, however, thus far left out of account the possibility of social ambition being aroused in the mind of the artizan by any further expenditure by the state on education, with a consequent diminution in his fertility. First let us imagine that society is divided into different social strata in accordance with the rate of wages received, and also that each stratum has its own family allowance system by means of which all the customary costs of education in that stratum are completely covered. Now, in these circumstances, the allowances drawn by parents belonging to a less well-paid stratum would not, as a rule, cover the costs customary in the better-paid strata, and, consequently, a certain barrier would thus be erected rendering all movement between the strata more difficult. This would place a check on social ambition amongst the naturally prudent, which would produce a desirable increase in their fertility, though it certainly would be a step in the direction of caste. If there were, however, a considerable number of valuable scholarships, and if in consequence potential parents were to feel that the chances of any children of theirs rising above their own social position would depend, not all on the length of their own purses, but entirely on the qualities of those children themselves, then this caste feeling would be sufficiently obliterated, and the parents would be under no special temptation to limit the size of their families because of any state aid to higher education. A system of family allowances graded in accordance with the incomes earned in each class, together with a liberal expenditure on scholarships covering all costs likely to be thrown on parents, appears to be the best way of mitigating the harmful effects on the race of educational facilities.



Another fact to be remembered is that education is very costly, and that any additional taxation raised for this purpose would tend to reduce the fertility of the tax-paying classes generally, for a long time at all events; this being a dysgenic effect not to be altogether overlooked. Precautions should certainly be taken to insure that no educational expenditure is incurred in vain; and with this end in view, state aid should only be given to institutions which make it reasonably certain, by the introduction of suitable tests, that public money is not expended on the teaching of pupils naturally incapable of benefiting by the instruction given. Indeed, it is probably in most cases better for the pupils themselves that they should be excluded from institutions designed to give trainings for careers for which they would not be fitted; for failure in after life is both more damaging and more painful than an early recognition of the fact that a humbler calling must be followed.

The conclusions here arrived at may be summarized in the following manner. To elevate the moral tone of the whole nation by educational methods would have no direct effect on fertility, and this should be the main aim of this branch of state expenditure. To make the education of children less costly would tend to increase the fertility of potential parents, provided the instruction given was held to be satisfactory; whilst the opening out of new educational possibilities might tend to arouse new feelings of social ambition and thus to lessen their fertility. The net result of the civilizing influences of education is probably to diminish the fertility of the more fit, and thus to undermine civilization itself. This evil racial effect of modern civilisation must be combated, not by lessening our efforts to improve national education, but by the introduction of the many safeguards having no connection with this subject. The racial effects of public expenditure could, no doubt, be rendered somewhat less harmful by the adoption of a suitable educational policy. Scholarships should be less numerous and more valuable rather than more numerous and not nearly covering the expenses necessarily thrown on parents; and their aim should be to insure that all who might become of exceptional value to the state should actually be of the greatest possible use. Up to the end of the compulsory period, education of all kinds should be both free and of excellent quality. Secondary educational establishments should be freely subsidized by the state, provided that no money is wasted in teaching the incapable and the unwilling. From the eugenic point of view, the main aim should be to make parents of sound stock feel that they could without undue strain cover all the costs of educating a family of reasonable size sufficiently well to prevent them from falling down into a lower social stratum; whilst as to the possibility of their children rising to a social stratum higher than their own, this should be regarded as a not improbable event, but one entirely out of the parents' control. And these results would best be attained by adopting the above mentioned precautions in regard to both scholarships and state expenditure on education generally, together with family allowance systems organized by the members of the different callings themselves.